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ABSTRACT

A complex and multi-faceted problem faces those seeking to provide special education to the thousands of handicapped children residing in the nation's rural areas. The major challenge facing rural administrators is how to deliver special education effectively to small numbers of handicapped children who are probably scattered geographically. A rural district may contain a wide range of handicapped conditions spread over multiple grade levels; few teachers can deal with such a diverse array of conditions. Rural districts tend to be those lowest in income and cannot easily supply facilities or special equipment or recruit specialists to provide the range of special educational services required by state and federal laws. Regionalization of several school districts can allow for a wider range of services, but often the distances involved are prohibitive. Federal, state, and court mandates have given rise to a number of training, analysis, and resource coordinating activities, and the 1970's have been a time of great expansion and change in special education for rural areas. The U.S. Bureau of Education for the Handicapped has invested in such endeavors as 16 Regional Resources Centers, 19 Direction Service Centers, and a number of collaborative agreements with other major federal agencies. Efforts undertaken within individual states are described at the conclusion of this document and the author lists a number of recommendations for future efforts. (DS)

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EDUCATION OF HANDICAPPED CHILDREN IN RURAL AREAS: A PAPER PREPARED FOR THE RURAL EDUCATION SEMINAR MAY 29-31, 1979

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EDUCATION FOR HANDICAPPED CHILDREN IN RURAL AREAS

INTRODUCTION

Providing special education and related services to handicapped children in rural areas is a complex and multi-faceted problem. Until recently, problems of educational service delivery in urban areas have dominated the literature. As federal and state laws, as well as recent court decisions have emphasized and urged immediate full services to all handicapped children, the issues and problems of program implementation in rural school districts across the nation have taken on greater visibility and concern.

This paper will deal with several unique challenges in providing special education in rural America:

1. Identification of handicapped children to be served.

2. Development of appropriate service delivery models for handicapped children.

3. Development of an adequate funding base for special education service delivery.

4. Ability to train, recruit, and retain quality special education personnel.

5. Development of efficient communication and support to rural special educators.

This paper will also identify major trends in the implementation of state, federal and court mandates, as well as initial difficulties rural areas experienced in implementation of the federal statute. The authors will look at activities of the Bureau of Education for the Handicapped which are focussed on rural areas, and recommend directions for future research and policy development.

WHO ARE THE CHILDREN?

According to the Census Bureau, all geographic areas having a population of 2,500 or more are defined as urban and those with 2,500 or less as rural. In 1975, there were more than 15 million children enrolled in non-metropolitan schools including 13.6 million white children and 1.8 million black and other minority children. Thirty-two percent of all children enrolled in 11,800 public schools in the United States were enrolled in non-metropolitan areas. Based on these figures, it is estimated that approximately 150,000 handicapped children reside in rural school districts.[1] Based on incidence rates, however, up to 1.5 million children with handicapping conditions or 10% of the population might be expected in these areas.

Rural school districts are the fastest growing school districts in the nation, but are the ones experiencing the most rapidly declining enrollments.

According to Census data, urban population density averaged 2,760 people per square mile, while rural population density averaged 15 people per square mile.[2] There is considerable diversity and variation among rural school districts in terms of economic base, socioeconomic characteristics, political traditions, community values, etc., even within the same state or region of the country.[3]

A recent research report indicated that at least 5.3 percent of all rural school-aged children are not enrolled in any school.[4] This is nearly twice the non-enrollment rate found in urban areas. A major reason given for children out of school is handicapping conditions--the lack of available special education and/or the lack of parental information concerning such services.

All states have instituted "child find" programs to locate handicapped children who have never been to school and to identify those handicapped children already placed in schools, hospitals, institutions, or correctional facilities who are unserved and underserved. Effective child find efforts in rural areas face problems of isolation and sparsity. Children who might be referred by neighbors, postmen, milkmen, or social service providers are easier to hide when they live in remote seclusion. Often parents and neighbors have taken an attitude about "protecting" and "hiding" a handicapped child and may not refer the child to an outside agency such as the school for assistance. Parents and the extended family may feel ashamed about exposing a handicapped child in a tight-knit rural community and keep the child effectively hidden.

Child find efforts in the rural states are hindered by limited communication in remote areas. Radio and television public awareness spots are not applicable to rural villages in Alaska, isolated Indian reservations in Arizona, or small mining communities in rural Idaho. States have implemented unique case finding and child find strategies such as sky writing, house-to-house canvassing, visits by home extension agents, child find coupons in church bulletins, etc. Experience in Idaho and several other rural states has found that personal contact is the most effective child find strategy.

Research has indicated that geographic areas with poor prenatal care, reduced health care, and lower socio-economic levels have greater prevalence of certain handicapping conditions such as mental retardation and learning disabilities. A disproportionate number of children with these handicapping conditions may be identified in rural areas as needing special education and related services. Often there is a selective migration of families with similar handicapped children to a school district or community so that special education can be provided and parents can find support from other parents with similar problems. This may result in larger numbers of handicapped children to be served in a rural community. Placement by health and welfare agencies of handicapped children in foster homes and group intermediate care facilities may also affect the numbers of certain types of handicapped children to be served in rural school districts. Rural school districts near state institutions also find a larger number of severely handicapped children to be served because of deinstitutionalization efforts and because of the security parents have for a backup placement in the institution if needed. Statistics on the number of

handicapped children identified under P.L. 94-142 in rural states, however, don't show a disproportionate number of children identified as compared to more urban states. The 17 most rural states vary from 6.12% of the total 5-17 population enrolled in special education to a high of 11.46%. The national average is 8.12% and comparable figures for the 15 least rural states are 6.29% and 11.68%.

WHAT ARE EFFICIENT SERVICE DELIVERY OPTIONS?

The major challenge facing rural administrators is how to deliver special education and related services effectively to small numbers of handicapped children who are probably scattered goegraphically. Grouping of children on any kind of homogeneous basis is virtually impossible. In Idaho, for example, 86% of special education programs for handicapped children are heterogeneous, serving small numbers of children who have several kinds of handicaps. Several states have turned to regional service units for more efficient service delivery. Such regionalization by several school districts can allow for a range of special education and related services with fewer teachers and administrative personnel needed than if similar services were provided in individual school districts. However, the use of intermediate educational units, school corporations, multi-district units, or other types of regional programs to serve handicapped children more efficiently often results in squabbling over the locus of decisionmaking control in such an administrative unit, its location, the loss of community pride and ownership in programs, and higher transportation costs. The savings in instructional and attendance

functions accrued from serving larger numbers of students can be negated by greater costs of transportation, more drivers and fuel, and faster bus depreciation. The provision of related services often demands additional transportation arrangements. Students traveling to regional service units may find themselves riding a bus up to an hour and a half a day or longer--a factor which may make regional programs impossible or imprudent for more seriously handicapped students.

For the mildly handicapped in rural areas, "mainstreaming" has historically been the rule rather than the exception. It is usually not difficult to implement in a manner that focusses on the educational need of each handicapped child. The consulting teacher model[6] and the placement of special education resource teachers within the regular classroom are alternative arrangements that have been well-utilized in rural areas with limited classroom space.

In contrast, service delivery options within a rural school district for severely handicapped children is more limited, particularly for emotionally disturbed and profoundly retarded children. It may be difficult to justify the employment of a teacher and an aide for two emotionally disturbed children or three severely handicapped children with limited communication or self-help skills. Newly-trained special education teachers usually do not have adequate skills for teaching a wide variety of handicapped children across several age levels. The availability of physical therapists, occupational therapists, and other personnel needed to provide related services to handicapped children is likewise limited in rural school districts.

By and large, effective uses of technology have not been explored. Teacher communication and assistance can be transmitted via television and resource hot-lines. Various applications of computer technology can provide additional resources and alternative models of service delivery for rural special educators.

IS THERE AN ADEQUATE FINANCIAL BASE TO DEVELOP EFFECTIVE SERVICE DELIVERY OPTIONS FOR HANDICAPPED CHILDREN IN RURAL AREAS?

Not too long ago, state aid for special education in the public schools was very limited and in some states nonexistent. At the beginning of the 1970's, special education had grown to be the largest single category of state aid, with the exception of capital outlay. Data for fiscal year 1972 indicated that state aid for special education was at least 50% greater than aid for pupil transporation, 100% greater than aid for vocational education, and at least 300% greater than state funding for compensatory education.[7]

Court decisions and state and federal laws have had a tremendous effect on state funding for special education. Expenditures of $910 million in 1972 increased to $2.5 billion in 1976. The state share of special education costs currently averages about 55%, the local 31%, and the federal 14%. However, these figures vary from state to state. For example, the federal share of special education varies from a high of 44% to a low of 10%.[8]

The increase in state funding for special education has paralleled the increase in the percentage of handicapped children served; i.e., 5.9% in 1972, 8.3% in 1975, 9.0% in 1976, and over 10% in 1979. States, however, have a long way to go in fully funding special education. The total local and state costs for special education in 1976 was $4.6 billion. Providing full services for all handicapepd children may require an estimated $9.2 billion.[9]

The two major school finance problems in rural areas are the uneven geographic distribution of property and income wealth, and the sparsity of population that leads to higher educational expenditures.

As measured by property wealth, the poorest school districts are rural. A study of thirteen states in all regions of the country done by the Syracuse University Research Corporation indicates that rural areas had the lowest amount of per pupil expenditures proportionate to their state and local revenue.[10]

Rural school districts also tend to be the poorest in income. In analyzing U.S. Census data concerning the percentage of household earnings under $3,000, in all states except New York, the highest concentration of families were in rural areas. With the exception of New York, New Jersey, and Massachusetts, the lowest concentration of families earning over $10,000 were in rural areas. Fewer wealthy people and greater numbers of poor people result in a limited ability to pay school and other taxes.[11]

Perhaps the most significant variable affecting the costs of providing special education in rural areas is the effect of sparsity on the cost per pupil. Higher costs are incurred in transporting handicapped pupils in sparsely populated areas to and from school. The low incidence of certain handicapping conditions and the need to provide unique related services often requires that handicapped children be bused to another school district, regional center, or community service agency.

The second additional cost element due to sparsity is the small school effect. Higher costs per pupil of instructional salaries and administrative costs, energy costs, and maintenance, are found due to low incidence of handicapped children to be served. It is not possible to provide a low cost program in a school district with one deaf child, two blind children, and perhaps three physically or mentally handicapped children. Because it is also difficult to recruit physical therapists, speech therapists, or psychologists to provide necessary related services, these services often have to be purchased from private providers on a part-time contractual basis at more expensive prices.

Finance patterns, policies and procedures for financing educational programs for exceptional children have been changing dramatically over the last few years with the advent of state and federal mandatory laws and recent emphasis on equalization and equity for all children in state aid formulas. Historically, states have used a combination of funding patterns to aid school districts and help compensate for the additional costs of special education. Bernstein et. al. classified state special education funding patterns as follows:[12]

1. Unit Support - school districts are reimbursed a fixed sum by the state for a classroom unit or pupil/teacher ratio unit.

2. Weighted Unit - pupils are weighted according to handicapped status and amount of funding is based on the total weighted pupil unit a school district has in its programs.

3. Percentage - a percentage of full costs or certain costs is the basis for distributing state support.

4. Personnel - school districts are reimbursed for salaries of personnel employed in special education programs.

5. Straight Sum - school districts are reimbursed a specific sum of money per pupil for each type of handicap.

6. Excess Cost - school districts compute the cost of educating handicapped children and subtract from it the average cost of educating a regular child. The state then fully or partially reimburses the excess cost to each school district.

Thomas found when examing relationships between state education expenditures for special education that per capita personal income was the predominant variable related to the extent of special education provided.[13] Wilken and Callahan also observed that the wealthier, socially homogeneous suburban districts have been the first to develop the expertise and the

willingness to commit new funds for special education.[14] However, in examining the expansion of special education funding between 1972 and 1975, Wilken and Porter found that expansion depended more heavily on the overall strength of the state-local education revenue system. Those states which had a history of inability to support education revenue growth were least able to increase funding for special education.[15] Again, they confirmed the commonly accepted notion that school districts with relatively greater wealth had a greater concentration of special education funding. These findings suggest that the adequacy overall of the school finance system may be the most important factor to concentrate on in looking at special education growth and support. Thus, in examining special education services in rural areas, it may be most important to look at the general equity of funds distribution.

Most of the literature on school finance reform and its impact on rural areas suggests the need for specialized factors for ruralness. Still, the findings on the impact of these changes in several states is mixed. In 25 of the 50 states, density of population is currently considered in the general state finance pattern to offset the differences in costs incurred by rural school districts. Callahan and Wilken report that rural areas could be treated more justly.[16] Yet, even with special factors in the finance formula in Utah and a sophisticated weighting system in Florida, they also find that these two states were initially unable to assure that poor rural communities were able to take advantage of more favorable funding opportunities. In New Mexico where special factors have been included in the funding formula, efforts at program improvement were stymied by the inability to recruit appropriate teaching

personnel. In both Utah and Florida, identification of handicapped children remained low in poorer rural districts despite favorable reimbursement programs and evidence of high concentrations of special needs students.[17] As a final comment on the issue, at least one report suggests that rural adjustments may slow the pace of equitable school finance reform and result in needless aid being distributed to districts less in need.[18]

As states continue their efforts at overall school finance reform, the effects of the tax limitation movement also spell problems, particularly for those rural states which have not yet been able to make much headway at reform. Interviews earlier this year with observers in the states which have already passed expenditure limits, and research by Wilken and Callahan suggest that the growth in expenditure may be slowed and programs which are not yet mandatory, such as preschool programs for handicapped children, may not be undertaken. While observers believed that special education programs would continue to grow because of state and federal mandates, they also noted that rural districts would be hardest pressed because they have less flexibility in reallocating resources.[19]

Perhaps the last factor which needs to be examined in the finance area is the effect of growing federal funding on rural states and districts. While there are no rural offsets in the P.L. 94-142 funding formula, national distribution is based on the number of handicapped children being served in a state and a growing percentage of the national average per pupil expenditure. Within a state, funds are directed to districts on a per pupil served basis although a district or combination of districts must be able to generate a minimum of $7,500 for funds to flow directly.

As funding grows to $804 million in FY 1980 and more experience develops, federal administrators may want to examine the impact of these funds on state equalization formulas and on funding needs of rural states and districts.

CHARACTERISTICS OF A RURAL TEACHER

Teaching the "basics" and reinforcing community standards continue to be important tasks of a teacher in rural areas. In such communities, there are close ties between the school and community. This can be both an advantage and a drawback to teaching in a rural area. Teachers remain accountable to the community in a rural area in far greater ways than the teacher working in urban areas. Rural teachers are often perceived as specialists with personal lives separate from the families of their students. On the other hand, this close liaison between the school and the community can provide the potential for a close-knit special or regular education program with significant parental involvement, as well as a close student/teacher relationship. Practical considerations of distance and availability of housing often necessitate teachers living near the school, thus coming under close scrutiny of the community.

Rural teachers still tend to come from communities like that they teach in. Muse, Hoppe and Parsons found that teachers from rural backgrounds were most able to live comfortably in a rural community. They found that "the most dissatisfied rural teachers tend to have been raised in urban areas" and that they tend to find "social acceptance more difficult" in the small community.[20]

Special and regular education teachers in many rural areas find other disadvantages such as outdated and limited educational materials. Many of these teachers have to handle multiple grades and have heavy teaching loads. There is limited access to resources often more readily available in urban areas. Rural teachers often report a poor institutional self-image. Special education teachers who have completed intense teacher training programs often report feelings of isolation because they are unable to interact frequently with special education teachers in other areas of the state.

SUPPLY AND DEMAND

In order to fully implement state and federal laws pertaining to the education of handicapped children, an adequate supply of special education teachers, administrators, and other personnel must be available. While the total number of special education teachers in the United States is dropping, the number of graduates in special education has been steadily increasing. Despite this growth, however, the supply falls short of the demand. During Fall 1977, the National Center for Educational Statistics reported a shortage of about 3,300 trained special educators, primarily specialists in learning disabilities. This figure represented funded vacancies rather than those needed to provide full educational opportunities for all handicapped children.[21]

Figures 1 and 2 summarize the numbers of special education teachers as well as other special education personnel available during the 1976-77 school year and needed for the years 1977-78 and 1978-79. This data

indicates that approximately 85,000 special education personnel were needed to fill expected demand during the current school year, 1978-79, compared to 20,000 new personnel produced each year. Figure 2 shows that an additional 31,000 teacher aides were needed by 1979, as well as a number of other personnel to provide related services for handicapped children.[22]

A major obstacle rural officials face in recruiting teachers, administrators, and other special education personnel is the lower salaries provided. The average salary earned by rural teachers (including special education) is about 24% less than the average for metropolitan area teachers.[23] In school districts with less than 50 pupils (in 1972 there were 2,053 of these small districts--about one out of every eight districts in the country), the average salary is 47% less than those offered in larger systems.[24]

Table 1 summarizes average teacher salaries in the most rural states compared to average salaries earned by teachers in the least rural states, for the current school year, 1978-79. (The national average is estimated at $15,040.) All twenty of the leading rural states were at least $2,400 below the national average salary.[25]

TEACHER TRAINING -- PRE AND IN-SERVICE

Jonathan Sher has observed that teacher training programs in the United States have paid little attention to the needs in small, rural schools

and that the literature is full of moaning about the poor quality of rural teachers.[26] Muse, Hoppe, and Parsons pointed out that a recent study of university offerings revealed that in 1969, no more than six universities in the nation offered courses which might be of any prospective value specifically to the rural teacher.[27] This training gap is closing with the increasing emphasis by universities to provide professional training for rural areas, the emphasis upon rural regional centers, and increasing inservice training programs. Still, most rural teachers (including special education) enter their classrooms with little or no specific preparation for meeting the needs of rural children.

Special education teachers find that the typical groups of students they work with are heterogeneous rather than homogeneous groupings of children; i.e., the students have a range of handicapping conditions. Special education teachers must handle students across multiple grades, as well. Many rural school districts do not have the money or attracting power to recruit specialists to provide the range of special education and related services required by federal and state laws pertaining to the education of handicapped children. These teachers, then, find themselves providing a variety of physical education programs and related services such as specially-designed physical education, "quasi" physical therapy, counseling, speech therapy, etc. Pre-service teacher preparation programs do not provide training in diverse roles necessary to implement the range of services required by federal legislation for handicapped students.

Because of the diverse special needs of the rural educator, inservice training assumes critical importance for the non-specialized teacher as

the major conveyor of theory and practice in the areas of special education, early childhood education, vocational counseling, and information resources. In many cases, the efforts of universities, state departments of education, or regional teacher centers are hindered by the remoteness of the small communities they hope to serve. Continued professional development opportunities are increasing with the advent of P.L. 94-142. However, such support is as related to the distance of the school district to a major university, state department of education, or regional center, as to the school district's share of federal funding available.

TRENDS IN CERTIFICATION

One of the problems working in rural areas is the reality of serving a range of exceptionalities across a variety of ages and grades. Trends in teacher certification may help offset this training and service delivery problem. Issuing a single, generic special education teaching certificate for mild to moderate handicapping conditions, eliminating or combining other disability-specific certificates, and competency-based certification all offer the flexibility needed in rural settings. These trends along with inservice and preservice training of regular teachers for preparation and the teaching of handicapped children in the regular classroom may assist rural schools to serve their heterogeneous handicapped populations. Emphasis on competencies and field experience allows prospective employers in rural areas to better determine the adequacy of applicants' skills for successful teaching in small school districts. A 1977 New York Times article reported that 40% of our acquired knowledge becomes outmoded in five years.[28] Trends toward limiting certification

to a time period with periodic renewals based on relevant professional development also may meet the changing needs in special education. This trend promotes continued inservice training and other development activities which assure educational development in both rural and urban areas. Such opportunities may also lessen the feelings of isolation of rural special educators by providing them continued communication with professional colleagues.

TEACHER TURNOVER

A recent research memo, Teacher Supply and Demand in Public Schools, 1977,[29] reported that the attrition rate of teachers was decreasing as a result of increasing difficulties in finding employment following an interruption in service. This attrition rate (6.3%), however, was specific to regular education teachers. While systematic studies of the annual turnover or attrition rate of special education personnel have not been conducted, one state ranking 3rd in the nation in rural population indicated special education attrition rates of 30% for teachers of speech impaired and lower attrition rates for other types of special education teachers.[30] Other states contacted by the authors of this paper have reported turnover rates of special education teachers at 20% per year.

In Idaho, which ranks 13th in the nation in rural percentage of total population, higher attrition rates have been observed for special education teachers. Data reported for school years 1968-69 through 1973-74 indicate that approximately half (54%) of the special education teachers employed

in Idaho rural school districts taught for one or two years and then left special education positions. During the next two years, however, a decrease in attrition rates for special education teachers was noted. 41% entering in school year 1974-75 left after one or two years and 44% of those entering special education position in school year 1975-76 left after one or two years. During this ten year period, a difference in attrition rates was found when data was analyzed by type of training. For those leaving after one, two or three years during this period, a turnover rate of 17% was noted for special education teachers holding either a masters or other advanced degree. A follow-up study of special education teachers leaving rural Idaho special education positions during this ten-year period indicated several consistent contributing factors--feelings of isolation, lack of continued professional development, lack of administrative support, and low salary levels.[31]

Additional research is needed to determine special education attrition rates in other states--comparing levels found in urban and rural areas. Various alternatives need to be explored to reduce these rates in order to minimize the lost educational time to students and the increased administrative time experienced during a new teacher's orientation and initial experience.

DEVELOPMENT OF ALTERNATIVE COMMUNICATION AND SUPPORT MODELS FOR USE IN RURAL AREAS

In an attempt to implement detailed federal legislation for the education of handicapped children, as well as provisions of similar state laws,

State Departments of Education are becoming more concerned about the development of appropriate communication and support systems for special educators and administrators in both urban and rural areas. Universitites are playing an increasing role in providing on-going support to personnel in urban and rural areas through field-based preservice and inservice training. Regional centers have been initiated to expand inservice training opportunities.

Three general models have been utilized to provide technical assistance and support--in-house assistance, in-field assistance, and in-print assistance. Specific strategies include state and regional conferences or workshops, summer special study institutes, on-site assistance, regional demonstration centers, newsletters, telephone conversations, etc. Several states including Idaho utilize a visitation program in which funds are provided for special education personnel to visit other school districts to view special education programs and to share education strategies for solving various programming problems. Talent banks have been implemented to match specific client needs with technical assistance skills. This extended staff model is particularly important because many State Departments of Education in small, rural states find that small staffs responsible for a large geographic area are unable to provide the necessary on-going technical assistance to small school districts in rural remote areas. Other types of staff extension models which have been utilized include "circuit riders", methods and materials specialists located in universities, regional staff located in the field, etc. The primary goal of these is to provide connective links that will maximize communication and the motivation of new ideas and skills.

The effects of new technology and the coming communications revolution on existing and developing support systems for special education in rural areas are not yet known. For example, computer, video and audio teleconferencing media may provide opportunities to reduce barriers of time and space in large geographic and rural areas.[32]

In addition to teleconferencing, the growth of broadcast television and cable television will increase the future communication capability of rural areas. Two-way communication via cable television will be possible. The use of video discs will provide a wealth of additional resources to special education teachers in rural areas.

Currently, there are about twenty commercial communication satellites in orbit. Use is somewhat limited because of cost and regulatory problems. However, by the year 2,000, advances in satellite channel capability should be equivalent to 22,000 TV channels.[33] Special education teachers in rural areas should be able to receive "on the spot" assistance from long-distance consultants for specific teaching problems. Pre- and inservice educational course offerings should be available via satellites with student feedback to the instructor.

Improvements in mobile communication links in the future will also allow subscribers to communicate with portable hand-held units with another subcriber anywhere, and not be limited by current range restrictions and limited numbers of channels available in current citizens band radio usage.

TRENDS IN IMPLEMENTATION OF STATE, FEDERAL AND COURT MANDATES IN SPECIAL EDUCATION

Problems of scale and isolation and resource availability have always plagued the delivery of special education services in rural areas. More than anything else, state, federal and court mandates today raise problems because of the consistency of the requirements and their solid base in law and regulations. The federal statute brought with it a requirement that all handicapped children of school age be provided a "free and appropriate" public education by September 1978. Despite similar state statutes and, quite often, earlier compliance dates, the advent of this federal requirement and the parallel assignments of responsibility to local and state education agencies to assure special education and related services to all children identified meant finally that the piper had to be paid. Previous legal mandates were now enforceable regardless of the adequacy of previous funding bases or the availability of federal funds to help out. Across the country, local districts and state agencies have experienced problems in gearing up to deliver related services to handicapped children, to train inservice regular classroom teachers and special educators to provide individualized programs for handicapped children, to work with various procedural safeguards including fair hearing procedures for parents and their children, and to assure that handicapped children were served in the regular education environment as much as possible and healthy for the child. "New" provisions in the federal statute--such as the requirement of an Individualized Education Program for each child, an actual count of children being served instead of estimates, child-find requirements and fair hearing procedures--resulted

initially in confusion and difficulty in training and interpretation, although greater experience with these provisions has enabled smoother operation.

Reports on implementation in the first two years under the federal statute point out several problems in rural areas which occurred because of personnel availability, limited resources and sparse population. These problems include: an initial decrease of handicapped children identified and served because of problems in training and time involved in development of individualized education programs;[34] apparent reallocation of resources from general to special education; backlogs in assessment and placement because of stepped up child-find activities due to lack of readily available services; an increase in staff time allocated to testing, IEP development and meetings; placement decisions affected by resource constraints; staff support for IEP's but concern about their inadequate training;[35] a reluctance to refer children who lived more than an hour away from the nearest special education class; testing more likely to be performed by unqualified personnel; difficulties in obtaining parental participation because of greater transportation problems and inflexibility of jobs; and logistical problems in scheduling team members for IEP development because of time and distance.[36]

Other difficulties arose because of required changes in traditional patterns of service delivery and historical relationships between state and local education agencies. In many states, separate state agencies and sometimes private agencies had been historically responsible for providing special education services to deaf, blind, mentally retarded, and multiply and severely handicapped children. With the emphasis on

serving children in the local public school system or as close to home as possible, service delivery responsibilities were changed and previous funding support did not always flow with the transfer of responsibility. And, particularly in the more sparsely populated states in the West, requirements of the law putting the state education agency in a position of monitor and compliance officer required great changes in role and difficulties in governance. Still other problems occurred as other state and federal programs threatened to withdraw from the provision of special education and related services, arguing that the schools and the State Education Agency were mandated to provide all these services and that they should move their resources to other priority areas. Efforts to establish and maintain working cooperative relationships at the federal and state levels to provide coordinated and comprehensive service show potential to offset this slippage.

Court action also has intervened to change service delivery patterns, placing more emphasis on service close to home and availability of special education, related services and even community residential and other support services at the community level rather than in centralized programs in one area of the state. Requirements that the special education be "free and appropriate" has also caused a reevaluation and change in service delivery patterns as local and state agencies have had to become responsible for costs of out-of-district and out-of-state residential placement. In many ways, however, rural states are ahead of the game. Long distances and concerns about keeping children close to home has often meant keeping children in more "mainstreamed" environments so that reversing service delivery patterns is not as necessary there as in more

urbanized states where patterns developed early to remove children from the local public school.

Still, provision of comprehensive services for heterogeneous groups of handicapped children living in rural areas is an administrative, resource and planning challenge for personnel already overburdened and undersupported, for it means providing prevention services, identifying children with handicapping conditions, directing and training service providers to meet the unique needs of a child, providing sensory aids and other supportive equipment, providing parent and family counseling, providing training in mobility, speech and daily living skills, vocational training and job placement, recreation and social activities, personal care, transportation and indirect support services such as personnel training, construction of facilities and research.[37] Clearly, rural districts cannot hope to maintain the full battery of early childhood, vocational and academic personnel trained in special education alone, even with some of the changes we have already suggested in certification and training patterns and the exploration of various incentives used to attract personnel in other service delivery areas, such as in the medical and health area.

WHAT IS BEING DONE NOW?

In preparation for nationwide response to the new federal law and in response later to the findings of several implementation studies, the U.S. Bureau of Education for the Handicapped has undertaken a variety of

training, analysis and resource coordinating activities which can assist rural states and districts respond to the need for more comprehensive services. Sixteen Regional Resource Centers have been operating for several years, more recently with responsibilities to assist states in their designated regions with diagnosis and assessment, training and IEP development, development of state cooperative agreements across agencies to provide coordinated and more comprehensive services to handicapped youth, and parent training. In addition, nineteen Direction Service Centers were established to demonstrate ways of linking handicapped children and their families with services which are available in and around their communities, and several serve rural populations in Iowa, Nebraska, North Carolina, North Georgia, Alabama and Utah. A major initiative was undertaken by the Bureau to develop at the federal level and encourage at the state and local level formal cooperative agreements between agencies with responsibilities for delivering vocational, supportive and other related services to handicapped children and youth. This initiative has resulted in initiation and development of collaborative agreements with such other major federal agencies as the Office of Child Health (which administers Medicaid's EPSDT program); the Bureau of Community Health Services (which administers the Maternal and Child Health and the Crippled Children's Program and has resulted in joint support of 6 collaborative demonstration projects); the Rehabilitation Services Administration and the Bureau of Occupational and Adult Education (which has resulted in a joint policy statement regarding collaboration for the development of individualized education and rehabilitation programs); the Public Services Administration (which administers the Title XX Social Services program); the Administration for Children,

Youth and Families (which administers Head Start); and the Office of Civil Rights (with its parallel responsibilities for implementing the elementary and secondary requirements of section 504 of the Rehabilitation Act).[38] Two of the collaborative projects with the Bureau of Community Health Services--in Louisiana and Iowa--show promise for efforts to deliver services in rural areas. In Louisiana, the Departments of Education and Health and Human Resources have coordinated the activities of EPSDT, school nurses and local health departments for screening, identification, information sharing, referral and follow-up supportive services. Another project operating in that state, focusses on services from birth to five years and coordinates the services of the Maternal and Child Health program and the public school, with intent to identify a single screening, intake, and records transfer mechanism, as well as coordinated follow-up and training services.

In Iowa, plans are underway to set up a single Community Child Center program, providing a single point of entry, referral and service delivery by combining the assistance of area educational agencies, social services, child care services and health services. Pilot clinics are already operating and serve as a meeting place and source of consultation for professionals. This project is especially interesting because it distinguishes between three levels of care: primary (local primary care physicians and educational agency mobile units); secondary care (through regional clinics for diagnosis and development of individulized medical and educational plans for more severely handicapped children); and tertiary care (referral to the Crippled Children's clinics or to the Developmental Disabilities Unit of the University Hospital School).[39]

Experience with implementation of P.L. 94-142 across the country suggests that delivery of comprehensive services to handicapped children cannot rest on the financing and provision of services by school personnel alone, especially in the areas of related and support services. The cooperative agreements discussed above to plan, deliver and finance services are particularly important for rural districts because they offer not only additional financing sources but personnel with skills to help handicapped children.

In the area of training of personnel, the federal law requires each state to include as part of its state plan a Comprehensive Personnel Development System plan for the development and training of preservice and inservice personnel in special and regular education and support areas. Funds under P.L. 94-142 may be used for critical inservice personnel training activities. The Bureau also initiated in 1974 a strategy for personnel development, asking each state to convene higher education, state department and local agency personnel to do a needs assessment and develop a statewide and regional personnel development plan.

In every year since 1971, the Division of Personnel Preparation has identified training in rural areas as a target for funding, and in 1974 began moving a larger proportion of its available training funds away from traditionally supported preservice programs to inservice training projects. In the 1978-79 grant cycle, some 38 of the 130 funded projects under the inservice priority were targeted on rural populations and many more served personnel or operated in rural areas. These numbers include at least one project in 14 of the 17 most rural states, such as:[40]

Arkansas--F.O.C.U.S., Inc. of Jonesboro, training teachers in public schools in rural Arkansas on IEP's, placement procedures and development of training manuals. This project worked cooperatively with a CETA project, training aides to work with teachers in regular classes.

Alabama--a project at Jacksonville State University to train 500 regular education teachers and do needs assessment to increase services in northeast Alabama.

Arizona--using Nebraska as a rural state site, a 3-state project, using teacher assistance teams for problem solving.

Iowa--inservice regular education training using the centers and mobile units described above as instructional and resource centers.

Kentucky--Murray State University, training school leadership teams and school board members to develop full services for children in western Kentucky and to demonstrate methods for serving handicapped children in rural environments.

Kentucky--Murray State University, Creative Use of Scarce Resources in Rural School Systems, a three year study of characteristics of special education delivery in rural environments, to identify success or failure factors. This project will look at community and school district characteristics which relate to effective delivery; examine interdisciplinary models of personnel preparation and disseminate its findings.

South Dakota--training regular school personnel in group process, IEP development, diagnosis, and enhancing parent participation.

West Virginia--training regular class teachers with released time to develop models to move handicapped children into the regular classroom and to assist in attitude change.

Idaho--training to assist administrators, special educators, paraprofessionals and change preservice training, particularly in the area of physical educaton.

North Dakota--a statewide training project to meet the training needs in the sparsely populated areas of the state, to develop personnel planning committees and to provide summer training to fill the needs and positions in school systems where service is not now available. Training will be provided in three high need areas of the state: the southwest corner, north central area and Stuttsman county.

The Bureau also operates several training projects to meet the needs of Hispanic and Native American handicapped youngsters, many of whom live in rural and sparsely populated areas.

In addition to these training programs, the Bureau of Education for the Handicapped has operated demonstration projects providing services to

handicapped infants, young children and their parents since 1968. Because of the success of these projects, this program has been expanded to include outreach and statewide demonstration projects. In 1978-79, of the 186 projects for demonstration and outreach, 40 were targeted on rural areas in 14 of the 17 most rural states. One of the earliest of these projects, the Portage Project in Wisconsin, was established as a rural model and has received nationwide and international acclaim. Designed to stimulate the development of services to handicapped preschoolers from birth to six, this project centers on home-based teaching and has trained more than 400 persons and provided onsite technical assistance, administrative consultation and training in the use of community resources. Other projects under the program which serve rural areas include:[41]

Idaho--a rural model for service delivery providing home and center based services based at the University of Idaho.

Missouri--a program based in Springfield, serving 80 children in south central Missouri covering 15 rural counties.

Montana--Project Sunrise based at Eastern Montana College serves children from birth to six who are very severely handicapped and cannot be served by local schools. It provides home-based parent training.

Nebraska--a project providing medical, psychological, social and educational assessment for preschool children in a five county area covering 3000 miles of rural Nebraska. The program has home and center based training for more severely handicapped youngsters.

North Carolina--based at Appalachia State University, this project serves a four county area in the rural, mountainous area of northwest North Carolina. It includes a sibling training program and provides homebound instruction.

North Dakota--the Bismarck Early Intervention program serves children from birth to three years of age in a center and through satellite centers at twelve sites in rural areas. This program includes home-based training, home visits every two weeks, and makes available related services such as psychologists, physical and occupational therapy. Notably, the project has pulled together the services offered by Head Start, day care, Child and Family Services, Special Needs programs and others under one administrative roof.

South Carolina--based at the Department of Mental Retardation's Coastal Regional Center, this program provides inservice training and assistance identification and assessment for local education agencies.

Tennessee--a Family, Infant and Toddlers project at George Peabody, designed to increase services available to infants in rural areas of middle Tennessee. It coordinates existing resources and provides inservice training to allied professional staff.

West Virginia--based at the Monroe County Board of Education, this program combines Head Start, first grade and home-based services in mainstreamed settings and has provided services within the existing facilities of this very low income area.

Missouri--an outreach project based at the University of Missouri, this program has demonstrated use of the extension service in delivering services to handicapped youngsters at 18 target sites, making use of University extension specialists to replicate services. This project serves 66 of 114 counties in the state and has trained volunteers to screen youngsters for handicapping conditions, child and family development specialists and area home economists.

Utah--Project Ski High based at Utah State at Logan has identified and provided language development skills to hearing impaired youngsters.

Utah--Multi-Agency Preschool Outreach Project, uses title and SSI funds to continue its service delivery and provides outreach assistance to the Utah Consortium of Preschool Programs, the Nevada Division of Mental Retardation, the Office of Navajo Economic Opportunity and Head Start Centers, Community Training Centers in southern Idaho and New Mexico. To date, the program has stimulated the creation of 22 additional sites.

CONCLUSIONS AND RECOMMENDATIONS

In preparing this paper, we spent considerable time doing a literature search, reviewing available materials and talking with various people about their experience in rural areas. While an exhaustive data analysis was not done, we did attempt to examine existing data and make comparisions, generally using summary statistics on the 17 states with the highest concentration of population in rural areas. This paper, therefore, is the result of splicing together bits and pieces about special education and "rural" areas, picking up a few points here and there and assuming that what was referred to as "rural" was somehow or other consistent.

If the general conclusion is that not much has been written about problems in rural education in general, less is available in rural special education, and what is available is, alternatively, state-specific, summary data on states as different as Montana and Alabama, or based on case studies of individual districts. Almost no systematic data gathering has occurred with rural districts, leaving anyone who wants to write about these areas generalizing about widely disparate states and extrapolating to districts in those states and others.

In special education, the 1970's have been a time of great expansion and change in rural education. And, now, since 1977 and the implementation of P.L. 94-142, it should be possible to look at rural areas and identify specific needs. In our examination of activities undertaken by the U.S. Bureau of Education for the Handicapped, it is clear that training, research and demonstration funds have been invested in rural areas at a

growing rate. The benefits of the knowledge gained by these projects are not widely known and could not now be disseminated in a ready fashion. We conclude that a great amount of knowledge and expertise in delivering special education services is available, either in the minds and plans of practitioners or in the evaluation and results of various training, research and demonstration projects.

Policy Recommendations

General Recommendations:

1. The National Institute of Education or other appropriate agencies should convene population experts in rural areas from state departments of education and local districts to discuss and identify similarities and differences in "rural" areas in an effort to more clearly define and collect information on schooling in those areas.

2. The National Center on Educational Statistics should begin collecting information on rural school districts which would be useful in drawing conclusions about school finance, teacher salaries, transportation costs and other large expenditures, and including program information on such areas as vocational education, special education, and compensatory education.

3. The U.S. Bureau for the Handicapped should review the results of various implementation studies and the findings of training, demonstration and research projects for their suggestions on what works

in rural areas. While various of the Bureau's divisions have invested resources, time and effort in assisting rural areas, most of these efforts have been limited to single cases, projects or areas. The Bureau does not now have a "rural strategy", nor are many of the individual efforts supported by each of the divisions integrated or known throughout the Bureau. We believe it would be worthwhile for the Bureau to bring together what it knows in order to determine an overall Bureau strategy.

4. Secondly, we believe it would be useful for the Bureau, the states and others interested in rural special education delivery to publish and disseminate what we now know about what works and what can work in rural areas. Much of what has been demonstrated in federally funded projects has not been pulled together and made available for users in rural areas. We note that Dr. Doris Helge at Murray State University in Kentucky has a training project which is beginning a 3 year study on rural special education delivery systems. This is a notable start, and we would recommend that the Bureau examine this effort and determine whether other projects and dissemination efforts could be made available in tandem with this project.

Specific Recommendations

5. The Bureau of Education for the Handicapped, the states and other interested agencies and organizations, should support research on

prevalence rates of children with handicapping conditions to determine whether there are noticeable differences in urban and rural areas. These studies should be undertaken using distinctions which are developed to distinguish among rural areas generally.

6. The Bureau of Education for the Handicapped, state education agencies, and other interested organizations and agencies should identify and disseminate information which demonstrates effective child-find strategies for rural areas.

7. The Bureau of Education for the Handicapped, state education agencies, and other interested organizations and agencies should identify, review and disseminate information relating to school finance data and studies which show the cost effective service delivery strategies to delivery services to low incidence handicapped children in rural areas, particularly emotionally disturbed and profoundly retarded handicapped children. We note here that several states in the Northwest have met twice under the auspices of the Northwest and Midwest Regional Resource Centers to study effective service delivery methods.

8. The Bureau of Education for the Handicapped, state education agencies and other interested organizations and agencies should begin examining the differential costs and benefits of service delivery to handicapped children in rural areas through single school districts and cooperatives. As noted in the paper, service delivery through cooperatives is not always easily accomplished administratively and it may be worthwhile

to reexamine the problems which the formation of cooperatives creates. Along these lines, the Bureau of Education for the Handicapped should examine the impact of the provision of P.L. 94-142 which limits direct distribution of federal funds to those districts (singly or in combination) which can generate $7500. Specifically, the Bureau should determine how rural state education agencies have disbursed federal funds to rural districts, and what effect the $7500 limitation has had on formation of cooperatives and service delivery. Little is known currently about in-state distribution of funds to local districts, and several states report that they have contracted directly with local school districts rather than be limited by the $7500 limitation.

9. The Bureau of Education for the Handicapped, state education agencies, and interested organizations and agencies should examine the possibility of more extensive use of computers, satellites and other technology for delivery of service, training of personnel and communication efforts in rural areas. While several projects have been funded which use satellites and other technology, information on the benefits and capabilities has not generally been disseminated for use throughout rural areas. In addition, the Bureau should examine cost effective methods for making this technology more available in rural areas.

10. The Bureau of Education for the Handicapped, state education agencies, institutions of higher education and other interested agencies and organizations should examine current efforts for training preservice

regular and special educators for work in rural areas. As noted in our paper, very few universities currently have specific training programs which prepare graduates for the kind of problems they will face in rural areas.

11. The Bureau of Education for the Handicapped, state education agencies, institutions of higher education and other interested agencies and organizations should examine factors which effect supply and demand for personnel for delivery of special education in rural areas. In particular, attrition rates should be examined to determine the unique factors which affect attrition in rural and urban areas and which help personnel to deal with these factors. The Bureau should also examine various methods used in other human service delivery areas to provide incentives for personnel to locate in rural areas, e.g., the National Health Service Corps, incentives such as scholarships or clinical internships, etc.

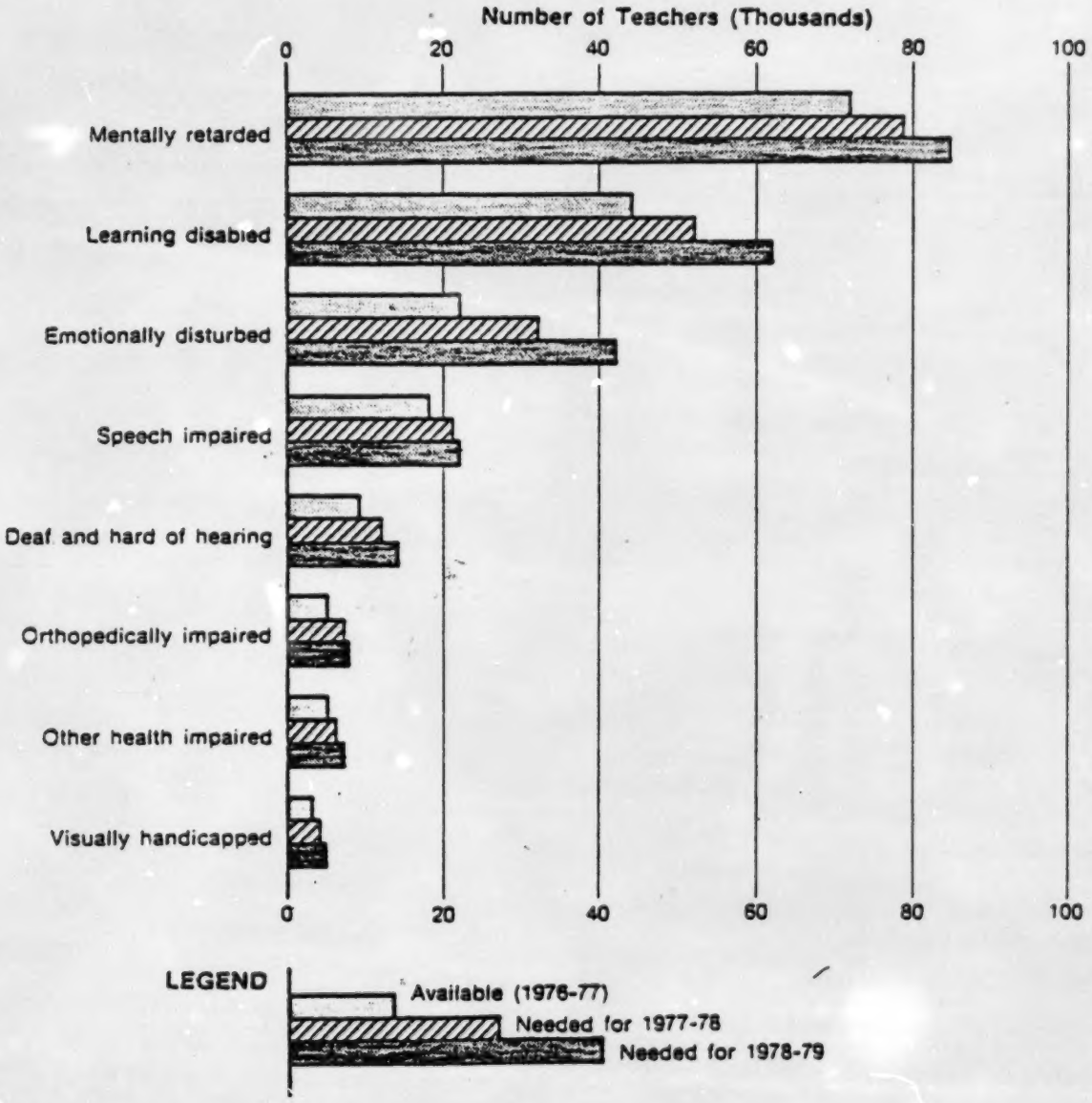
12. The Bureau of Education for the Handicapped, state education agencies, institutions of higher education, and other interested agencies and organizations should examine various methods of training personnel who are likely to remain in rural areas. We note, for example, that one of the training projects of the University of Missouri has trained community personnel and extension agents in diagnosis and assessment. Examination ought to be given to training, for example, bankers' wives and other persons who are likely to stay in rural communities. Inservice training techniques should be explored along with ways of developing coursework and clinical experience to assure that these persons could meet certification.

13. The Bureau of Education for the Handicapped, state education agencies, institutions of higher education and other interested agencies and organizations should support research and demonstration projects which show creative and effective communications models in rural states, including extended staff models for the delivery of technical assistance, and training and use of technology to prevent feelings of isolation and provide for communications and linkage with other professional personnel in rural areas.

14. The Bureau of Education for the Handicapped, state education agencies, and other interested agencies and organizations should identify and disseminate information and effective cooperative projects which make use of scarce human and dollar resources and effectively coordinate services in rural areas. We have noted several models currently ongoing in which human service agencies have coordinated their efforts to provide services to handicapped children and youth. Many other interagency efforts are ongoing throughout rural states and should be described and made available to interested users.

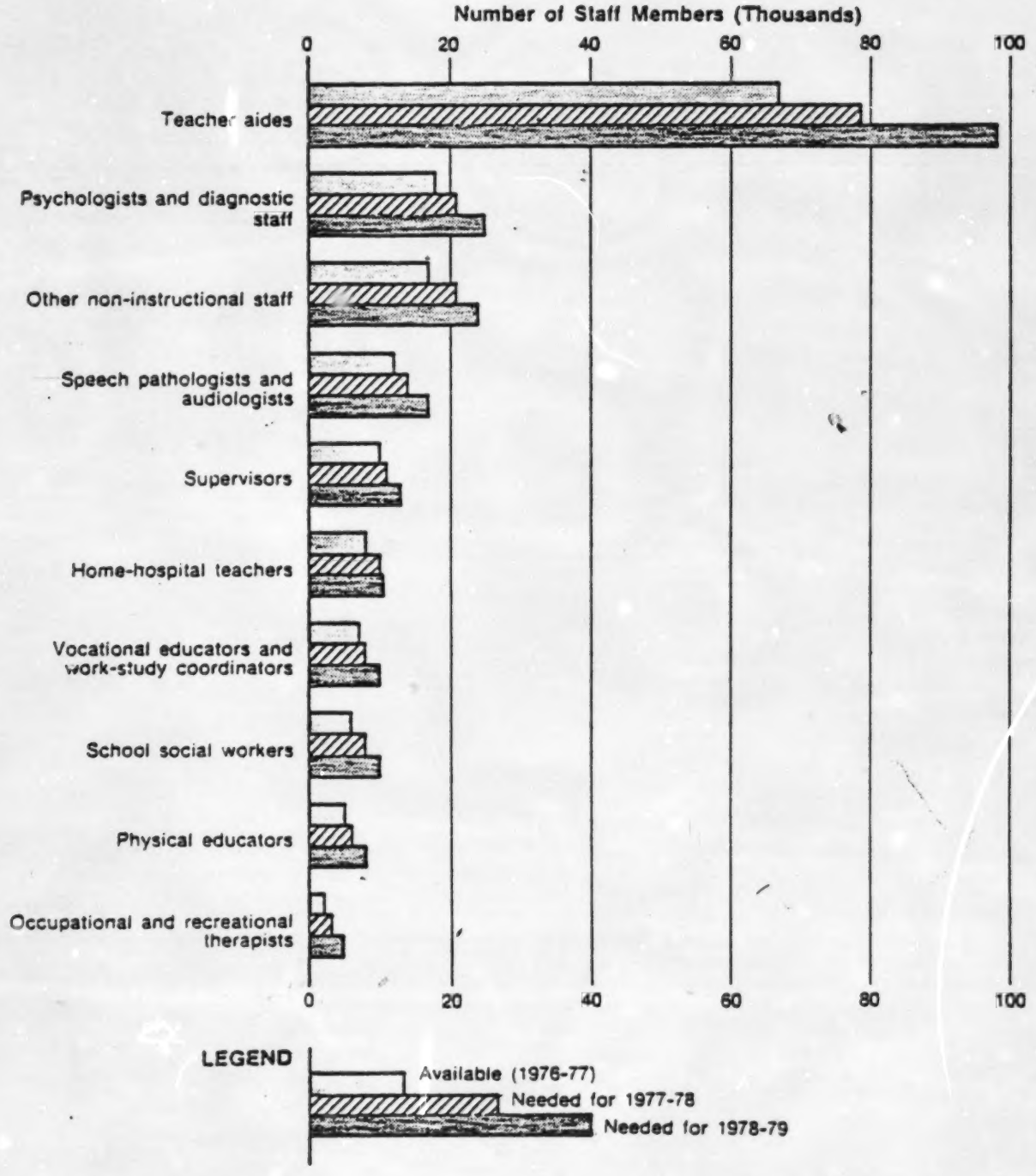
15. The Bureau of Education for the Handicapped, state education agencies and other interested agencies and organizations should begin to examine the effects of school finance reform, tax limitation legislation and the effects of federal funding on equalization efforts, especially in rural areas. As federal funds grow, their impact on rural areas should be examined to determine their effects on service delivery. As noted in our paper, the impact of federal funding cannot be examined in isolation from the overall impact of school finance reform, particularly in states which use scarcity factors.

Figure 1. Special Education Teachers Available and Needed by Type of Handicapping Condition of Child Served[1]



[1]Some States combined categories.

Figure 2. School Staff Other Than Special Education Teachers Available and Needed[1]



[1]Some States combined categories.

Table 1. Average Teacher Salaries in the Ten Top Ranking Rural States Compared to the Ten States Having the Lowest Percentage of Rural Population -- 1978-1979

State	Rank based on % of Rural Population	Average Teacher Salary	State	Rank based on % of Rural Population	Average Teacher Salary
Vermont	1	$11,786	Delaware	32	$14,917
West Virginia	2	12,675	Washington	33	17,400
N. Dakota	3	12,013	Michigan	34	17,974
Mississippi	4	11,150	Ohio	35	14,200
S. Dakota	5	11,750	Maryland	36	16,587
N. Carolina	6	13,537	Connecticut	37	15,235
S. Carolina	7	12,206	Colorado	38	15,000
Alaska	8	24,150	Arizona	39	15,200
Arkansas	9	11,126	Texas	40	12,975
Maine	10	12,328	Utah	41	13,910
Kentucky	11	13,130	Florida	42	14,005
Montana	12	13,624	Nevada	43	17,880
Idaho	13	12,624	Illinois	44	16,905
New Hampshire	14	11,825	Hawaii	45	18,357
Iowa	15	14,199	Massachusetts	46	16,125
Alabama	16	12,948	New York	47	18,600
Tennessee	17	12,733	Rhode Island	48	16,698
Georgia	18	12,793	New Jersey	49	16,325
Wyoming	19	14,469	California	50	17,380
Nebraska	20	12,936			

Source: U.S. Bureau of the Census, 1972.
NEA Research Memo--Estimates of School Statistics, 1978-79.

FOOTNOTES

1 U.S.Bureau of the Census Statistical Abstract, 1976, Table 195.

2 Ibid., Tables 16 and 23.

3 Sher, Jonathan P., Revitalizing Rural Education, National Conference of State Legislatures in Cooperation with the National Rural Center, 1978, p.4.

4 Ibid., p.11.

5 States which developed programs in special education in the 1940's and 1950's have contended that families migrated to take advantage of their readily available services. More recent studies indicate that the higher identification rates may have to do with more complicated factors, including more sophisticated identification procedures and greater sensitivity in general to the existence of handicapping conditions. In general, there is a pattern of development to identification and growth of special education programs, with districts in the initial stages of development identifying children with only two or three handicapping conditions (mental retardation, mobility handicaps and other physical disabilities). As growth occurs, the characteristics diversify. Wilken in several recent studies finds that identification of handicapped children is related to the ability to mobilize the resources available. He concludes that it is hard to identify handicapped children without the development of an adequate and quality education program for nonhandicapped children. See Wilken and Callahan, New Hampshire's Special Education Finance System: A Time for Change ?, Legislators' Education Action Project, National Conference of State Legislatures, Washington, 1978; and Wilken and Porter, State Aid for Special Education: Who Benefits?, National Foundation for the Improvement of Education, Washington, 1976.

North Dakota is currently examining varying identification rates of handicapped children around that state. See Richard Hill, A General Report: The Financing of Elementary and Secondary Education in North Dakota, Bureau of Educational Research and Services, University of North Dakota at Grand Forks, 1979, p.60.

6 McKenzie, Hugh S., "Special Education and Consulting Teachers", in F. Clark, D. Evans, and L. Hammerlynk, eds., Implementing Behavioral Programs for Schools and Clinics, Research Press, Champaign, Illinois, pp.103-125.

7 _____, Educating all the Handicapped, National School Public Relations Association, 1977, p.33.

8 Wilken and Porter, p.15.

9 Educating All the Handicapped, p.33.

10 Berke, Joel S., Answers to Educational Finance in Rural Education, National Educational Lab Publishers, Austin, Texas, 1974, p.95.

11 Ibid., p.81.

12 Bernstein, Charles, et.al., Financing Educational Services for the Handicapped, Management Analysis Center, Inc., 1974, pp.25-29.

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14 Wilken, William and John Callahan, "State Special Education Finances in the 1970's", presented before the National Association of State Special Education Directors, Reno, Nevada, October 24, 1975.

15 Wilken and Porter, p.I-3.

16 Callahan, John and William Wilken, "State School Finance Reform in the 1970's," School Finance Reform: A Legislator's Handbook, Legislators' Education Action Project, National Conference of State Legislatures, Washington, 1976.

17 Ibid.

18 Bothwell, Robert O., Richard Johnson and Alan Hickrod, "Georgraphic Adjustments to School Aid Formulae," in Callahan and Wilken, School Finance Reform: A Legislator's Handoook, p.57.

19 Walker, Lisa, "Fund Limits and Special Education: Mandates are Mandates," in The Interstate Compact for Education, v.13, number 1, Spring 1979, Education Commission of the States, Denver 1979, p.8.

20 Muse, Ivan D., Robert J. Parsons and Edward M. Hoppe, "A Study of Teachers and the Rural Schools as Perceived by School Administrators, Teachers, Parents and Students," mimeograph, Brigham Young University, 1975.

21 Progress Toward a Free Appropriate Public Education: A Report to the Congress on the Implementation of Public Law 94-142, The Education for All Handicapped Children Act, U.S. Office of Education, January 1979, pp.53-57.

22 Ibid., pp.56-57.

23 U.S. Bureau of the Census, 1972, Census of Governments, vol.3, number 2, Compendium of Public Employment, Table 9.

24 Ibid., Table 16.

25 NEA Research Memo--Estimates of School Statistics, 1978-79, National Education Association, 1978.

26 Sher, Jonathan P., op. cit., p. 27.

27 Muse, op. cit.

28 Fowler, E.M., "The Obsolescence of Professionals," New York Times, June 24, 197

29 NEA Research Memo: Teacher Supply and Demand in the Public Schools, 1977, National Education Association, Washington, 1977.

Footnotes/3

30 Informal conversation with Dr. Jasper Harvey, Director of the Division of Personnel Preparation, U.S. Bureau of Education for the Handicapped.

31 Schrag, Judy A., A Study of Special Education Personnel: 1968-69, Idaho State Department of Education, 1978, mimeo.

32 Johansen, Robert, Jacques Vallee and Kathleen Spangler, "Electronic Meetings: Utopian Dreams and Complex Realities, " The Futurist, October 1978, p.313-319.

Three basic electronic alternatives may be used in the future. Computer teleconferencing is print-based, using keyboard terminals. Video conferencing uses a television-like image, as well as sound. Audio teleconferencing relies on the spoken word, with extra capacity for telecopying or telewriting. Video systems are in operation at Westinghouse and other corporate facilities. The signal is sent via satellite and the system was developed to eliminate travel between offices and sites. It is unknown whether the system can be adapted to remote areas. It is expensive and new communications skills are necessary for full use. Computer systems are less expensive and provide group communication regardless of time or space. Users type their message at standard terminals linked by phone or computer network and u to 25 can be involved. Participants can come in at their own convenience, receive messages and send a reply. The system may not be as effective, however, as having an image or vocie present for impact. Finally, portable audio conferencing equipment can enable the telephone to be used for large meetings across distances. However, visual signals are not present so order of speaking and interaction must be established and discipline is necessary.

33 Martino, Joseph P., :Telecommunications in the Year 2000," The Futurist, April 1979, pp.95-100.

34 Progress Toward Implementing a Free Appropriate Public Education, op. cit., p. 14.

35 Case Study of the Impact of Implementation of P.L. 94-142, Education Turnkey Systems, in process, Washington, D.C.

36 Longitudinal Study of the Impact of P.L.94-142 on a Select Number of Local Education Agencies, SRI International, in process, Palo Alto, Ca.

37 Progress Toward Implementing a Free Appropriate Public Education, op. cit., p. 50.

38 Ibid., . 65-72.

39 Education of the Handicapped Policy Project, Institute for Educational Leadership, George Washington University. Research in progress.

40 Handicapped Children's Early Education Program, 1978-79: Overview and Directory, U.S. Bureau of Education for the Handicapped, Division of Innovation and Development, Washington, 1979.

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